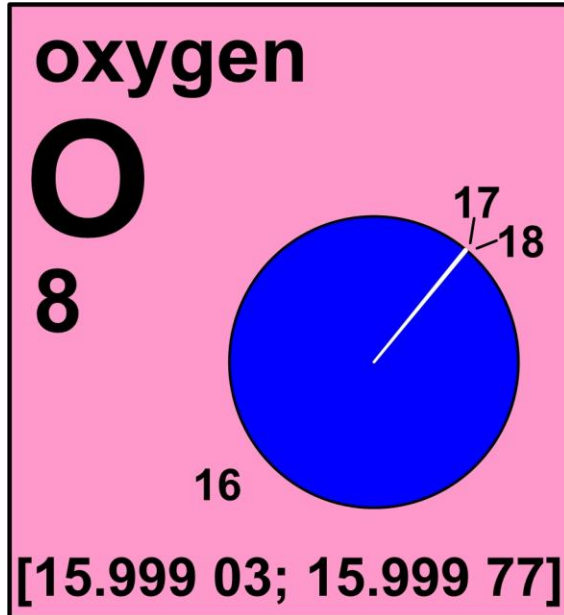





oxygen

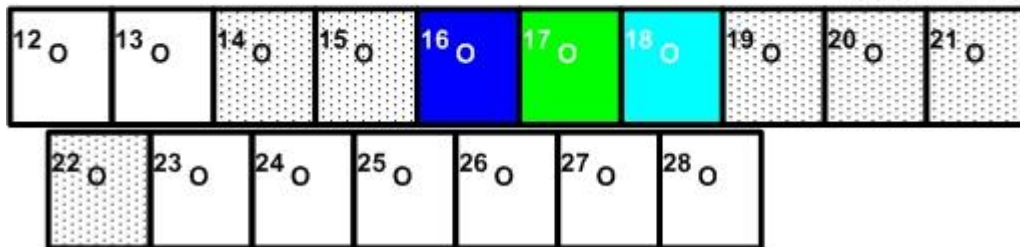


Stable isotope	Atomic mass*	Mole fraction
^{16}O	15.994 914 62	0.997 57
^{17}O	16.999 1317	0.000 38
^{18}O	17.999 161	0.002 05

* Atomic mass given in unified atomic mass units, u.

Half-life of radioactive isotope

Less than 1 second 
 Between 1 second and 1 hour 
 Greater than 1 hour 



Important applications of stable and/or radioactive isotopes

Isotopes in the environment

- 1) $^{18}\text{O}/^{16}\text{O}$ measurements record the impact of abrupt climate changes on the terrestrial biosphere.

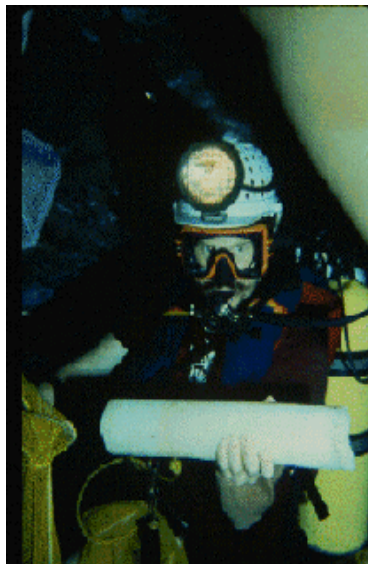


Figure 1: Diver collecting samples in Devils Hole, a tectonically formed subaqueous cavern located in south central Nevada. The vein calcite that coats the walls of the cavern has provided a 500,000 year record of paleoclimatic parameters.